

SONY®

FM STEREO/FM-AM RECEIVER

STR-VX10L

OPERATING INSTRUCTIONS Page 2

Before operating the unit, please read this manual thoroughly.
This manual should be retained for future reference.

MODE D'EMPLOI Page 16

Avant la mise en service de l'appareil, lire attentivement ce mode d'emploi.
Conserver ce manuel pour toute référence ultérieure.

BEDIENUNGSANLEITUNG Seite 30

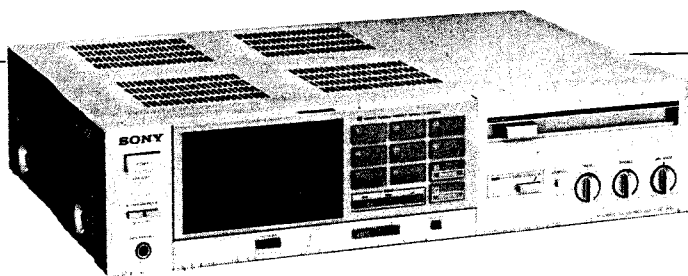
Vor Inbetriebnahme lesen Sie bitte diese Bedienungsanleitung aufmerksam durch.
Bewahren Sie diese Anleitung zum späteren Nachschlagen gut auf.

GEBRUIKSAANWIJZING blz. 44

Lees de gebruiksaanwijzing aandachtig door alvorens het apparaat in gebruik te nemen.
Bewaar de gebruiksaanwijzing voor eventuele naslag.

BRUKSANVISNING Sidan 58

Läs igenom bruksanvisningen noggrant innan du använder apparaten.
Bevara bruksanvisningen för framtida bruk.



WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

For the Customers in the United Kingdom

Important

The wires in the mains lead are coloured in accordance with the following code:

Blue: Neutral
Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

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FEATURES

The STR-VX10L with its Direct Access System, makes station selection easier than ever. The STR-VX10L also employs the quartz-locked digital synthesizer system in a separate state-of-the-art tuner section and provides medium-high power output for your home audio system from its amplifier section.

Phono amplifier stage, which employs an IC, is carefully designed to improve stereo separation and signal-to-noise ratio.

The quartz-locked digital synthesizer system with a sophisticated Phase Locked Loop (PLL) circuit allows extremely precise tuning of FM and MW/LW stations with an electronic digital readout on the frequency display.

A new IC recently developed by Sony allows the high comparison frequency thus eliminating the tendency for a low comparison frequency, which had been previously generally employed, to slip into the audio range and degrade the signal-to-noise ratio.

Four methods of tuning are available:

Direct access tuning: FM or MW/LW stations can be directly tuned in by inputting the station frequency with the DIRECT TUNING buttons.

Automatic tuning: the FM band is scanned automatically until a signal is received.

Manual tuning: MW/LW tuning can be accomplished either by changing the frequency display reading step by step or slowly to monitor the frequency.

Memory preset tuning: a desired memorized station can be instantly received by pressing the PRESET TUNING button.

The memorized stations are retained in memory by two back-up batteries when the power is turned off. These back-up batteries so allow the last station tuned in to be held in memory.

OPERATING VOLTAGE

Before connecting the unit to the power source, check that the operating voltage of your unit is the same as the local power line voltage.

The Continental European model (Type 1) operates on 220 V ac (or 110 V ac adjustable by authorized Sony personnel).

The United Kingdom model (Type 2) operates on 240 V ac.

PRECAUTIONS

On safety

● Before operating the unit, be sure that the operating voltage of your unit is identical with that of your local power supply.

● Should any liquid or solid object fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.

● Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by grasping the plug. Never pull it out by the cord.

On installation

● Do not install the unit in a location near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.

● Good air circulation is essential to prevent internal heat build-up in the unit. Place the unit in the location with adequate air circulation. Do not place the unit on a soft surface, such as a rug that would block the ventilation holes on the bottom.

● Do not place anything on top of the cabinet. The top ventilation holes must be unobstructed for the proper operation of the unit and to prolong the life of its components.

● Do allow more than 15 cm (6 inches) of space behind the unit so that the position of the built-in ferrite-bar antenna can be adjusted.

On operation

● Before making program source connections, be sure to turn the power switch off and unplug the unit.

● Do not attempt to test the protection circuits by blocking the ventilation holes or connecting improper loads.

● When the unit is not used, turn the power off, to conserve energy and to extend the useful life of your unit.

On cleaning

Clean the cabinet, front and rear panels periodically with a soft dry cloth. If the stains are difficult to remove, use a cloth moistened with a mild detergent solution. Do not use solvents such as alcohol, benzine or thinner, since they will damage the finish.

On repacking

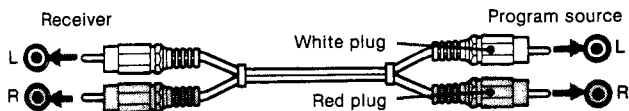
Do not throw away the carton and the packing material. It makes an ideal container to transport the unit in. When shipping the unit for repair work or to another location, repack it as illustrated on the carton box.

SYSTEM CONNECTIONS

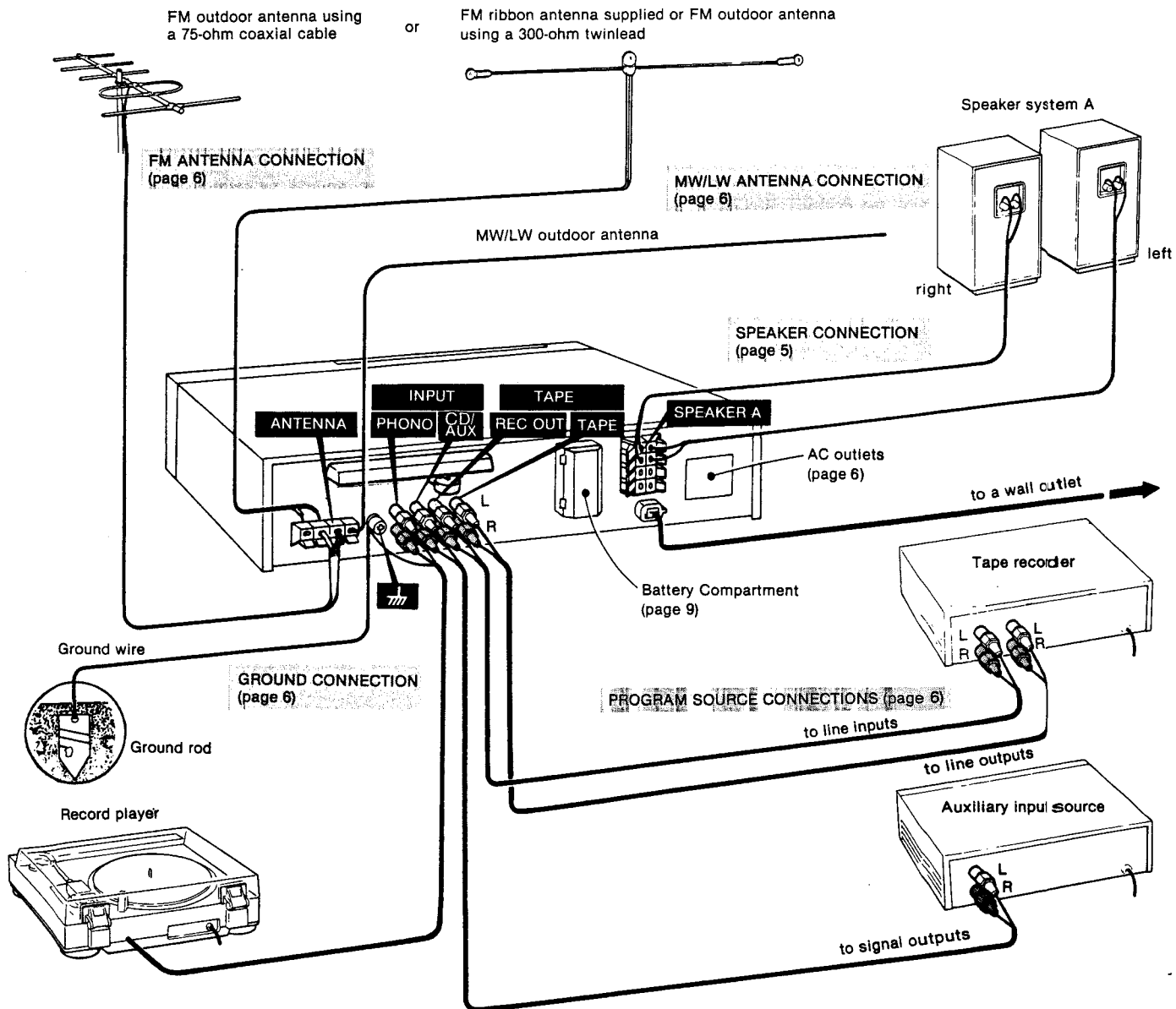
CONNECTION NOTES

- The power cord should be connected last of all, first making sure that the POWER switch is turned off.
- When connecting program sources or tape recorders, note that the red jacks of the receiver are for right-channel connections and the white jacks for left-channel connections.

- The cable connectors should be fully inserted into the jacks. A loose connection may cause hum and noise.
- Since there is a variety of cords—such as speaker cords, power cord, connecting cords—around the rear panel terminals, you should maintain a moderate separation between the bar antenna and the cords. This is because the receiver may produce a noise from the direct touch of the cords on the bar antenna.



CONNECTION DIAGRAM



SPEAKER CONNECTION

This receiver has provision for two pairs of speaker systems—system A and system B—which can be selected individually or simultaneously by means of the front panel SPEAKERS switches. Note that the speaker systems A and B are series-connected. No sound will be heard if only one of the speaker systems is connected and the SPEAKERS switches A and B are depressed.

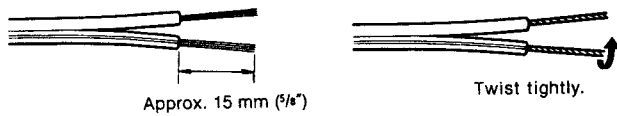
Speaker power capacity

This receiver is rated at 20 watts minimum RMS per channel with an 8-ohm load from 20–20,000 Hz and may deliver an instantaneous peak power much greater than the rated power. Be sure to use speakers with adequate power handling capabilities.

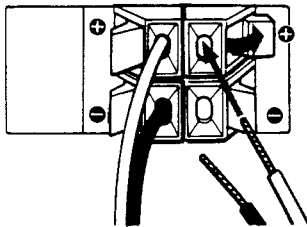
Connecting speaker cord to the receiver

Connect each speaker to the corresponding receiver speaker terminals, i.e. right speaker to the [R] speaker terminals and left speaker to the [L] speaker terminals.

- Strip approx. 15 mm ($\frac{5}{8}$ ") of outer covering from the speaker cord.
- Twist the wire ends for easy insertion.



- Depress the terminal button as illustrated and fully insert the twisted wires into the slot. Then release the button.
- Note that the colored or marked lead of a speaker cord goes to the $\oplus$ terminal and the remaining one to the $\ominus$ terminal, to avoid making any incorrect connections.



- After these procedures are completed, pull on the speaker cord tightly to see if the connection is secure.

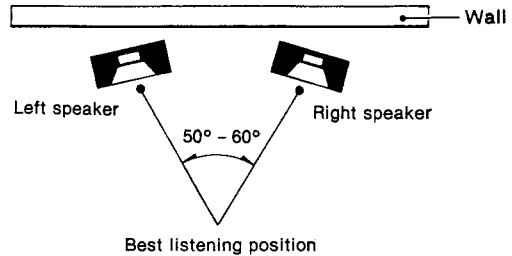
Speaker phasing

Correct $\oplus \ominus$ connection of both paired speakers insures proper in-phase operation. If the speaker system is out-of-phase, the bass tones seem to be missing and the position of the instruments becomes obscure.

Speaker placement

The distance between speakers, or the speakers and a listener depends mainly on the room size. Generally it is recommended that the speaker/listener relationship be an equilateral triangle configuration (as illustrated).

If the speaker separation is too wide, an undesirable "hole in the middle" effect occurs.



Place the right and left speakers in similar acoustic environments, otherwise you will obtain unbalanced sound. For example, placing one speaker near an open door or archway will decrease the apparent bass from that speaker.

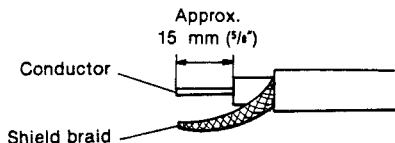
Best sound is usually obtained in a room with carpeting on the floor, heavy draperies and upholstered furniture. Since each room has its own individual acoustic characteristic, which is a function of its size, construction and furnishing, some experimentation with speaker placement is generally necessary before the correct balance of stereo image and bass response is obtained. This will be time well spent, resulting in your enjoyment of the maximum capabilities of your music system.

FM ANTENNA CONNECTION

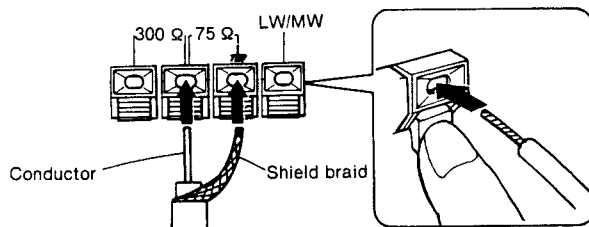
The receiver accepts either 300-ohm twinlead or 75-ohm coaxial cable. Standard 300-ohm twinlead is inexpensive but susceptible to the pickup of extraneous noise. 75-ohm coaxial cable is free from external interference, reduces noise pickup, and is the ideal transmission line for most FM installations.

75-ohm coaxial cable connection

- 1 Cut and remove the outer and inner covering as shown and twist the shield braid and the conductor.

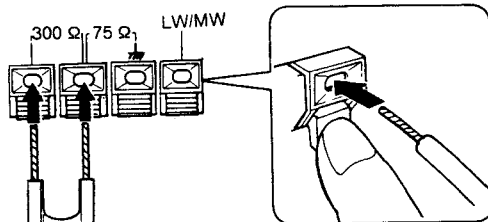


- 2 Connect the conductor and shield braid as illustrated.



- 3 Pull the cable lightly to make sure the connection is secure.

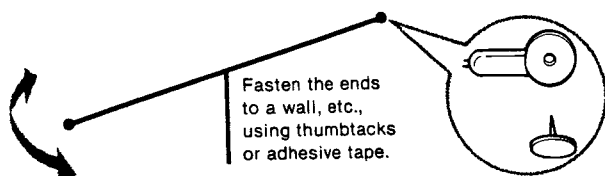
300-ohm twinlead connection



To route the twinlead over the roof or outerwall, use stand-off insulators. Keep the lead as short as possible and avoid running parallel to other wires or metal pipes.

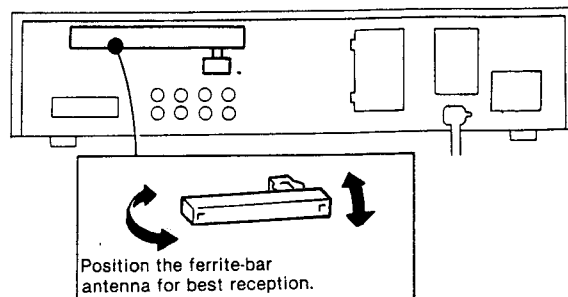
Ribbon antenna supplied

Until you install a suitable outdoor antenna, the supplied ribbon antenna may be useful. Connect it to the 300-ohm antenna terminals. For optimum reception, fully extend the antenna and position it for the best reception.



MW AND LW ANTENNA CONNECTION

In most areas, the built-in ferrite-bar antenna will provide satisfactory reception. In difficult reception areas, it may be necessary to connect a length of insulated wire 5–15 meters (20–50 feet) long to the LW/MW ANTENNA terminal. Extend this out of doors if possible, keeping the greater portion horizontal.



PROGRAM SOURCE CONNECTIONS

Record player

The PHONO inputs accept a typical moving-magnet (MM) cartridge.

Tape recorder

The tape recorder jacks are provided to connect a tape deck: TAPE for playing back a tape, and REC OUT for recording.

Other input sources

The CD/AUX inputs are provided for connecting various input sources such as a tape recorder (for playback only), an additional tuner, or a record player equipped with a ceramic cartridge. (The CD/AUX and TAPE inputs are identical in sensitivity and input impedance.)

GROUND CONNECTION

When an outdoor antenna is installed, the direct connection of the ground terminal [π] to a good ground is recommended for lightning protection. The use of a lightning arrester is recommended for any outdoor antenna.

To prevent hum, be sure to connect the ground wire of the record player to the ground terminal. If hum still exists, it may be helpful to connect the ground terminal directly to earth via a ground rod or other good ground, such as a clamp on a cold water pipe.

AC OUTLETS

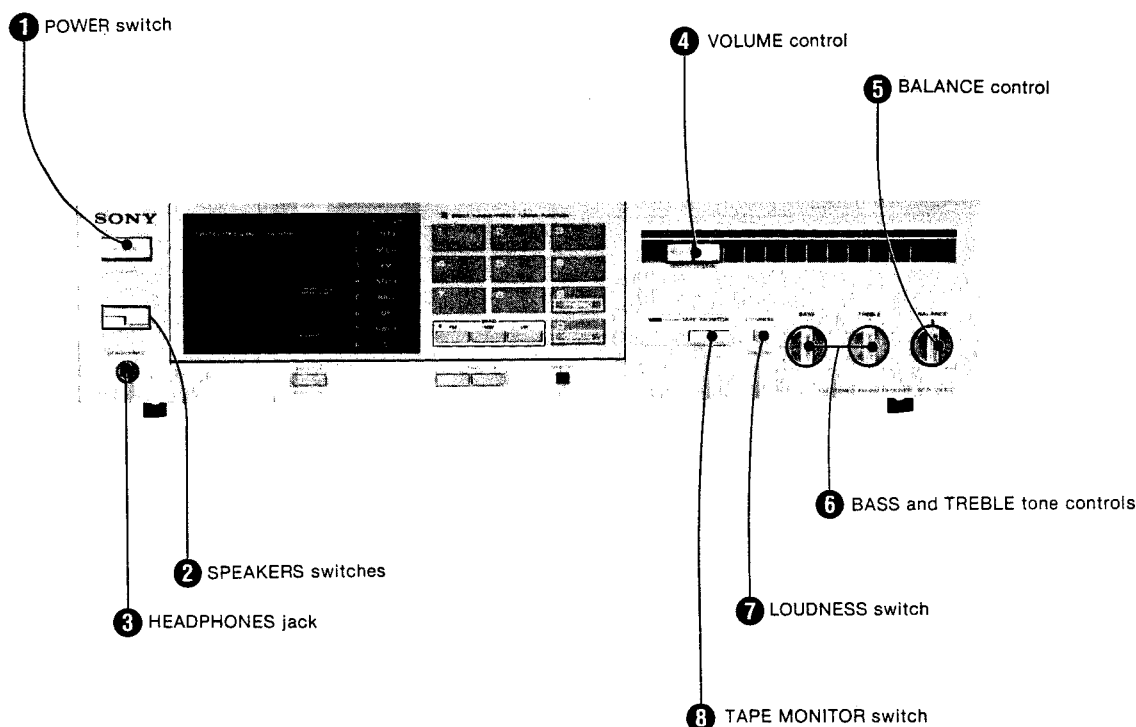
Audio components whose total power consumption is under 100 watts can be connected to these outlets. These outlets are controlled by the front panel POWER switch.

Do not connect an electrical home appliance, such as an electric iron, fan, TV or any other high-wattage equipment, to these ac outlets.

LOCATION AND FUNCTION OF CONTROLS

Before plugging in or attempting to operate this receiver, it is suggested that you familiarize yourself with all its switches and the purpose of each. Each number in the photo is keyed to the descriptive text.

Amplifier section



1 POWER switch

Depress to turn on the power. To turn the power off, press the switch again.

2 SPEAKERS switches

To drive speaker system A, depress the A switch.
To drive speaker system B, depress the B switch.
To drive both speaker systems A and B, depress both A and B switches.

3 HEADPHONES jack

Accepts any low or high impedance stereo headphones.
For headphone monitoring only, keep the SPEAKERS switches released.

4 VOLUME control

Regulates the overall sound level.
Sliding the lever to the right increases the volume and sliding it to the left decreases the volume. Be sure to lower the volume whenever you turn the receiver on or off or make system connections.

5 BALANCE control

Governs the amount of sound coming from each paired speaker to get optimum stereo effect. When you turn the BALANCE control to the right, the left channel volume is decreased, and vice versa.

6 BASS and TREBLE tone controls

These knobs control the prominence of bass and treble response. Clockwise rotation increases response; counterclockwise rotation decreases it. Normally keep these at the "0" position. Adjust the tone to the acoustic condition of the listening room or to your preference.

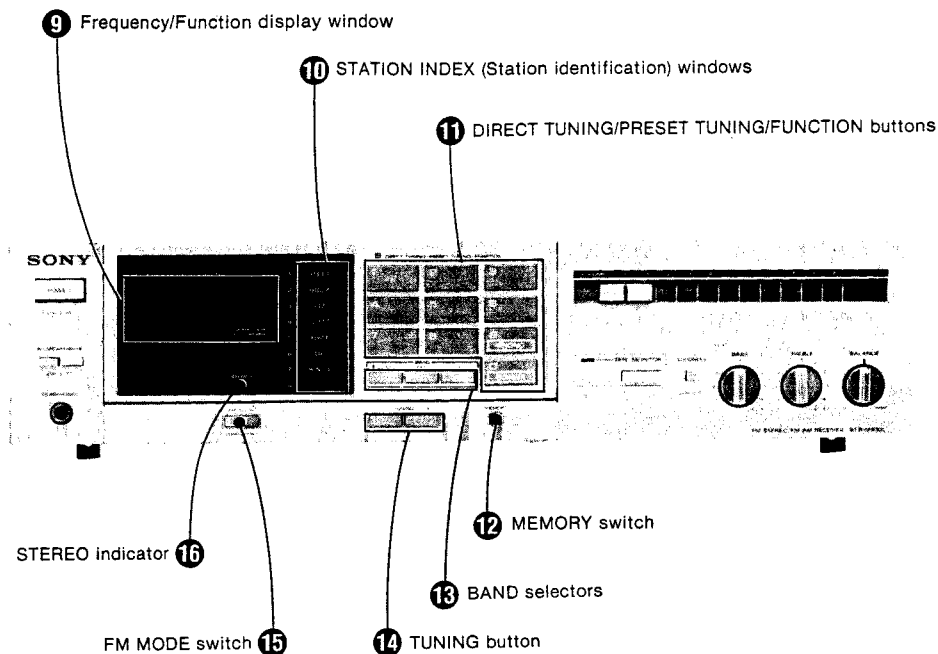
7 LOUDNESS switch

Normally keep the switch released (OFF). When listening to program sources at a low VOLUME control setting, depress the switch (ON).

This loudness control compensates for the human ear's decreased response to very low and high frequency sound at low volume levels, and provides an apparently uniform response. The effect of this control gradually decreases as the volume is increased by the VOLUME control.

8 TAPE MONITOR switch

To listen to a taped program, depress this switch. The indication above this switch will light up, indicating that a playback output from the tape recorder connected to the TAPE jacks can be heard.



9 Frequency/function display window

During broadcast reception



Frequency being received

During reproduction of record source or auxiliary input source.



Program in use

The PRESET TUNING button at which the frequency is memorized.

10 STATION INDEX (station identification) windows

Station labels (supplied) identifying memorized stations can be placed in these windows.

11 DIRECT TUNING/PRESET TUNING/FUNCTION buttons

Press the buttons according to the following desired purposes. The pressed figures will be displayed on the frequency/function display window.

For direct access tuning

(the 1 to 0 buttons serve as DIRECT TUNING buttons)
To tune in the frequency directly, press the BAND selector and the buttons.

For memory preset tuning

(the 1 to 8 buttons serve as PRESET TUNING buttons)
To call up a memorized station, press the appropriate button.

For reproduction of record and auxiliary sources

(the 9 and 0 buttons serve as FUNCTION buttons)
Press to select between PHONO(9) or CD/AUX(0).

12 MEMORY switch

Press to operate memory circuit. The "0" indicator will appear on the band/frequency-display window for a few seconds indicating that the memory circuit is standing by.

13 Band selectors

Depress the appropriate selector to select the desired band: FM, MW, or LW.

14 TUNING buttons

Press either the "+" or "-" button to change the frequency: Press the "-" button to go to a lower frequency and the "+" button to go to a higher.

During FM reception:

Press to start the automatic frequency scanning (in 0.05 MHz steps).

During MW/LW reception:

Press and keep the button depressed to change the frequency continuously. To change the frequency rapidly, press and release the button immediately.

15 FM MODE switch

During FM reception, when a stereo signal of sufficient strength is received, the receiver operates in the stereo mode. (The STEREO indicator will illuminate.)

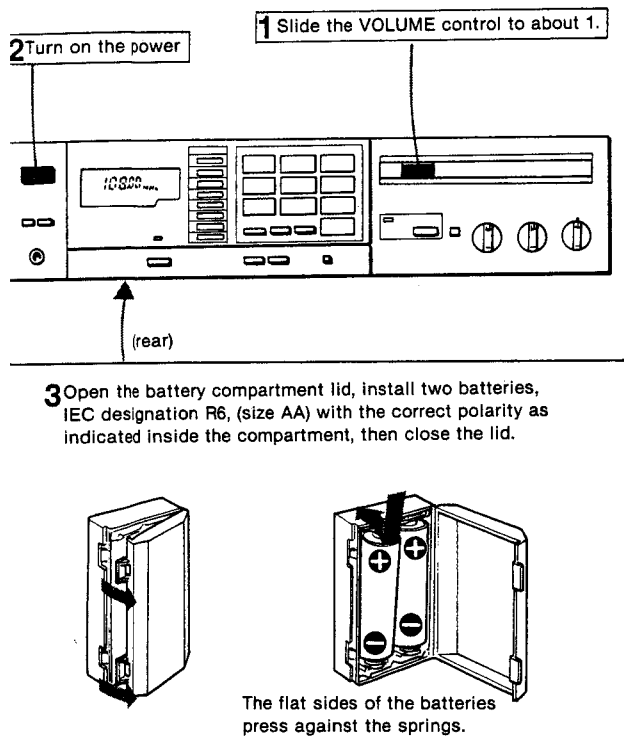
When you want to tune in a very weak FM station, or when an FM program is too noisy, press this switch. (The STEREO indicator illumination will go out.) Press it again to return to the stereo mode. The mode will automatically return to the stereo mode when the frequency is changed.

16 STEREO indicator

This indicator will light when an FM stereo program of sufficient signal strength is tuned in with the FM MODE switch engaged.

BATTERY INSTALLATION

To retain the frequencies memorized on the PRESET TUNING buttons while the receiver is turned off, install two batteries in the battery compartment at the rear as follows.



Battery life

About one year of operation can be expected when using Sony SUM-3(NS) New Super Batteries. Be sure to replace the batteries once a year to avoid damage from leaking batteries.

Note

Be sure to turn on the receiver before installing or replacing the batteries.

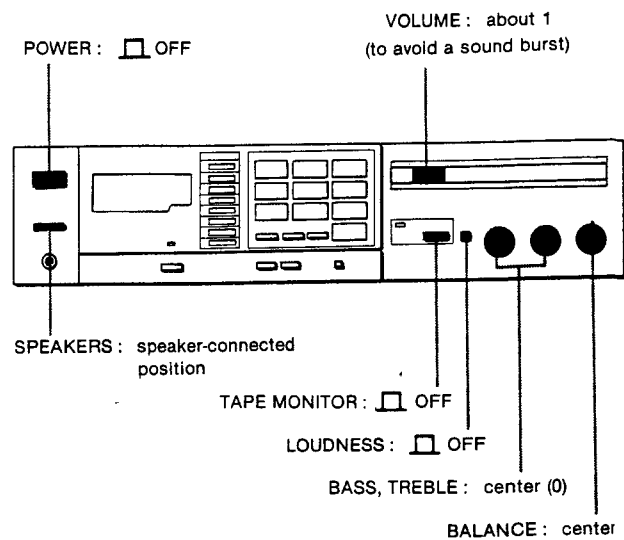
If the batteries are installed or replaced with the power turned off, incorrect figures will appear in the function/frequency display and you are not able to tune in the desired station.

In that case:

- ① Leave the unit with power off for 30 minutes.
- ② Turn on the power.
- ③ Install the two batteries.
- ④ Place the desired frequencies in memory again.

PREPARATION

Before proceeding to any type of operation, set the controls and switches as shown.



BROADCAST RECEPTION

This receiver incorporates the following tuning systems which give the listener a choice of 4 ways in which to tune in the desired broadcast.

Direct access tuning

If you know the frequency of the station to be received, you can tune in the station easily by this system.

Auto tuning (for FM reception)
Manual tuning (for MW/LW reception)

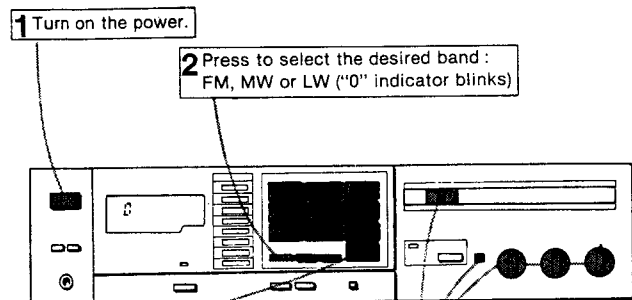
These systems are convenient for receiving a station whose frequency has not been memorized, or to see what kind of programs are on the air.

Memory preset tuning

Once you program the frequencies into the memory, all you need to tune in a station is to press the appropriate button.

DIRECT ACCESS TUNING

Follow the numbered sequence.

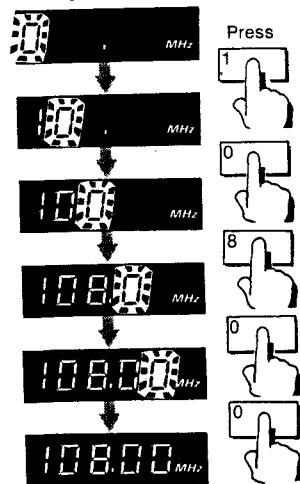


4 Adjust the volume and sound quality.

3 Pressing the DIRECT TUNING button, input the frequency of the station to be received.

Example 1: FM 108.00 MHz

Blinking

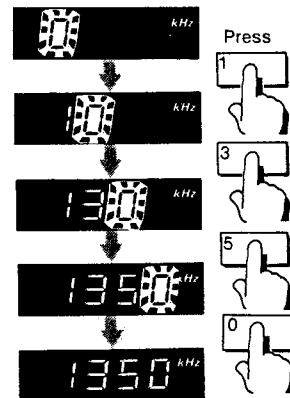


Press



Example 2: MW 1350 kHz

Blinking



Press



You can now hear the station whose frequency you have just input.

When the wrong frequency is input

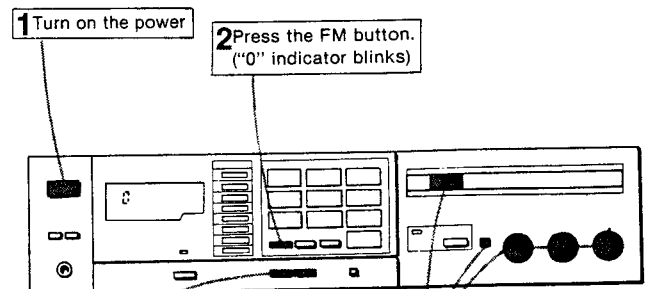
- If you mistakenly press a wrong figure, press the appropriate BAND selector again and input the correct frequency.
- If you input a frequency outside the receiver's frequency range (FM : 87.5 to 108 MHz, MW : 522 to 1602 kHz, LW : 153 to 344 kHz), the figures will flash on and off in the frequency/function display. In this case, press the appropriate BAND selector and input the proper frequency.

Notes on the AM direct access tuning

The last digit of the MW station frequency is always displayed according to the set AM frequency allocation system (intervals of 9 kHz). For example, even if you press the DIRECT TUNING buttons 1, 3, 6, 7, "1368 kHz" will be displayed in the frequency/function display window.

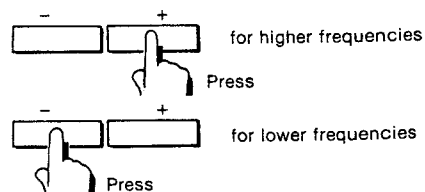
AUTOMATIC TUNING (for FM reception)

Follow the numbered sequence.



4 Adjust the volume and sound quality.

3 Press the + or - TUNING button to start automatic frequency scanning. There is no need to hold the button down.



The frequency figures will change rapidly and stop when a signal is received. If the received signal is not the desired one, press the button again.

To stop the automatic tuning, press the MEMORY switch.

If the signal strength is weak, the frequency display figures will not stop at the desired frequency. When this happens, adjust the antenna for optimum reception. If the signal strength is still too weak for automatic tuning, tune in the station as described in "DIRECT ACCESS TUNING".

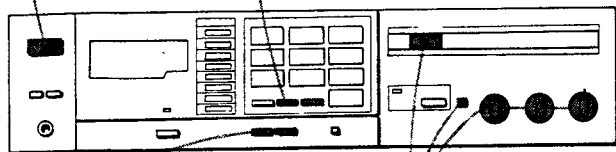
When the frequency figures reach the end of the tuning range of each band, the frequency will then be scanned from the opposite end of the tuning range.

MANUAL TUNING (for MW/LW reception)

Follow the numbered sequence.

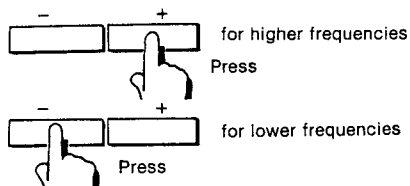
1 Turn on the power.

2 Press the MW or LW button.
("0" indicator blinks)



4 Adjust the volume and sound quality.

3 Press the "+" or "-" button.



Keep either of the TUNING buttons depressed or repeatedly press and immediately release the button until the correct frequency is indicated.

To quickly tune in a roughly known frequency

You can quickly tune in a FM, MW or LW station whose frequency is roughly known by combining the TUNING button operation with direct access tuning. Input the approximate frequency with the direct access tuning, then press either the "+" or "-" button. For example, if you believe your station is between 700 and 800 kHz, input 7 and press the "+" button, or input 8 and press the "-" button.

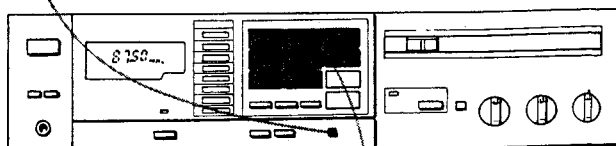
MEMORY PRESET TUNING

A total of eight FM or MW/LW stations or a combination of both can be preset in any sequence.

To memorize station frequencies

To memorize a station, first tune in the station then follow the numbered sequence.

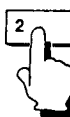
1 Press the MEMORY button. The "0" indicator will appear and blink on the frequency/function display, indicating that the memory circuit is ready for storing the data.



2 While the "0" indicator is blinking, press the desired PRESET TUNING button (1 - 8).



Press



Repeat these steps for each button.

Replace the station labels to conform to the selected memorized stations. See "STATION LABEL INSERTION" on page 12.

Notes

- The "0" indicator will go off automatically after a few seconds. When the indicator is out, the memory circuit does not operate to memorize the station.
- The previous memory will be erased when a new frequency is programmed in to the memory of the same button. An erasure cannot be made without a new input.

To receive a memorized station

Turn the POWER switch on and simply press the desired PRESET TUNING button.

Memory of the last received station

This receiver includes a memory circuit to remember the station which had been received for more than one second just before the power was turned off. This station will be automatically tuned in when the power is turned on again.

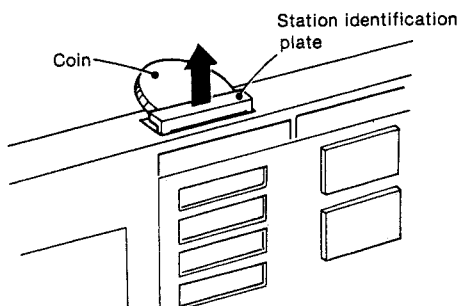
This memory system enables you to make a timer-activated recording from the receiver.

OTHER OPERATING INSTRUCTION

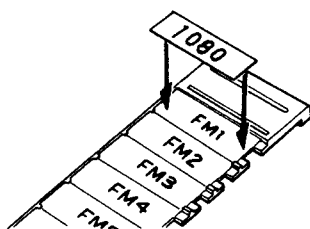
STATION LABEL INSERTION

Station labels are supplied for identification of the preset stations. Affix the labels as follows:

- 1 Pull out the station identification plate from the cutout with a coin or similar object.



- 2 Pick out the appropriate tables for the memorized station and affix them to the plate as shown, in the correct order.



- 3 Replace the plate. Check that the station labels match the memorized stations by tuning to each station.

REPRODUCTION OF PHONO, CD/AUX AND TAPE PROGRAM SOURCES

Once you familiarize yourself with the operation of FM/MW/LW reception, you can listen to other program sources as follows:

- 1 Set the control and switches at the initial setting position. (See page 9.)
- 2 Turn on the power and select the desired program source as required by using the TAPE MONITOR switch and FUNCTION buttons.

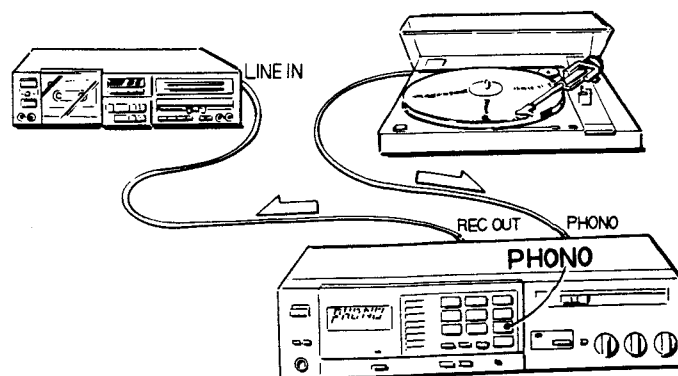
Program	TAPE MONITOR switch	FUNCTION buttons
Record playing	Released	Press PHONO (9).
Auxiliary source		Press CD/AUX (0).
Taped program	Depress	Any

- 3 Play the program source.
- 4 Adjust the sound quality to your preference.

The TAPE MONITOR switch has priority over the FUNCTION buttons. If the TAPE MONITOR switch is depressed, you cannot listen to the program source selected by the FUNCTION buttons.

TAPE RECORDING

- 1 Select the program to be recorded with the FUNCTION buttons.
- 2 Release the TAPE MONITOR switch.
- 3 Adjust the recording level.
- 4 Start recording.



Note: The VOLUME, BASS, TREBLE and BALANCE controls and the LOUDNESS switch have no effect upon the recording.

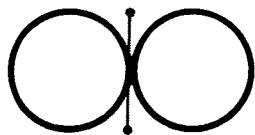
Monitoring of a 3-head tape recorder

If your tape recorder has separate record and playback heads, you can monitor the recording results. Press the TAPE MONITOR switch to monitor the recording results. Press the TAPE MONITOR switch again to release it, and the source sound will be heard. Be sure to keep the monitor switch of the tape recorder in the TAPE position.

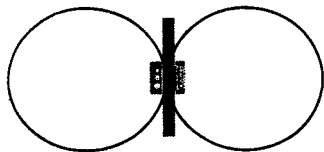
FM ANTENNAS

To get the best from your receiver, it is important to use an outdoor antenna. Be sure to pick an outdoor antenna which suits your location. This is determined by the signal strength, the presence of multipath signals*, and the location of the FM stations.

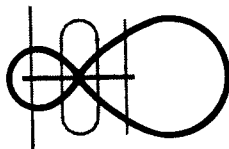
A **ribbon dipole antenna** picks up signals from both front and rear equally well, but is susceptible to the pickup of extraneous noise.



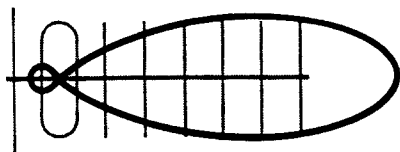
A **Sony table-top type AN-300 helical FM antenna (optional)**, which incorporates a tuning circuit, has the same pick-up pattern, with equal front and rear sensitivity, as a ribbon dipole antenna, but it is also liable to pick up extraneous noise. When this antenna is used with this receiver, with the antenna's TUNING MODE switch set to UTO, the antenna is automatically tuned to the same station as the receiver. This type of antenna is convenient when it is not practical to install an FM outdoor antenna and where the signals are sufficiently strong.



A **dipole antenna with reflector** has increased sensitivity to front signals and reduced sensitivity to rear signals.



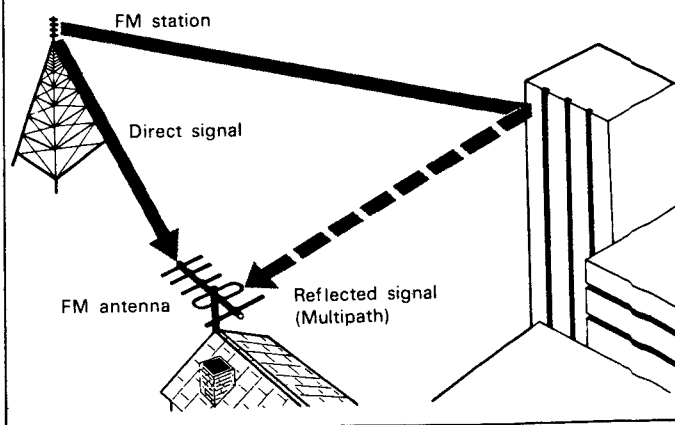
A **multi-element type** has a narrower pick-up pattern with high frontal sensitivity and superior rejection of rear signals.



FM antenna installation and orientation

- Install the FM antenna as high as possible, keeping it away from TV antennas or others operating in roughly the same frequency range.
- The antenna should be located on the side of your house away from heavy auto traffic to avoid ignition noise interference.
- To obtain good reception from all directions, the use of a remotely-controlled rotatable antenna, or an omnidirectional antenna which picks up signals equally well in all directions, is recommended.

* Multipath signals reflect from hills or structures, reach the receiving antenna perceptibly later in time and cause severe distortion and complete loss of channel separation. Multipath signals can be avoided to a great extent by using a coaxial cable, and a good directional antenna that is correctly oriented.



TROUBLE CHECKS

The following checks will assist in the correction of most problems which you may encounter with your unit. Should any problem persist after you have made these checks, consult your nearest Sony service facility. Before going through the check list below, first refer back to the connection and operating procedures.

OFF-THE-AIR PROGRAMS

STEREO indicator does not light when receiving stereo programs.

- Adjust the antenna.
- Press the FM MODE switch.

STEREO indicator flickers.

- Adjust the antenna or connect an external FM antenna.
- Press the FM MODE switch to disengage the stereo mode.

The function/frequency display figures do not stop at the desired station during automatic tuning.

- The signal strength is too weak for automatic tuning. Adjust the antenna for optimum reception or tune in the station with the direct access tuning system.

Tuning cannot be done correctly when the station preset button is pressed.

- Memorize the frequency correctly.
- Install or replace with new batteries for memory back-up.

Incorrect figure appear on the function/frequency display window.

- Install the batteries again. (Page 9)

Severe hum or noise

- Use shielded connecting cords.
- Ground the receiver.
- Avoid long horizontal runs of antenna lead.
- Keep connecting cords (or antenna lead-in) away from transformers or motors, and at least 3 meters (10 feet) from TV sets and fluorescent lights.
- Adjust the antenna.
- Keep the speaker cords, connecting cords and power cords from the ferrite-bar antenna at the rear.

Ignition noise

- Install the outdoor antenna away from heavy traffic.
- Use a shielded or coaxial lead-in for the antenna.

Electrostatic charge.

- Ground the receiver.

GENERAL

No audio

- Check speaker and program source connections.
- Check the settings of the TAPE MONITOR switches.
- Check the SPEAKERS switches setting.
- Turn up the volume.

No audio from one channel or unbalanced left and right volume

- Adjust the BALANCE control.
- Check the speaker and input connections of the inoperative channel.

Abrupt loss of sound from one or both of the speakers *

- Check the speaker terminals or speaker cord for a short.
- Remove any object on the top of the cabinet which might prevent normal air circulation.

Reversed left and right sound

- Check the speaker cord connection and speaker location.

Lack of bass sound or obscure instrument position

- Check the speaker connection for proper phasing.

Severe hum or noise

- Use shielded connecting cords.
- Keep the connecting cords away from transformers or motors and at least 3 meters (10 feet) from TV sets and fluorescent lights.
- Ground the receiver.

Rustling noise

- Make secure connections.
- Wipe the plugs and jacks with a cloth lightly dampened with methanol.

*This symptom may be caused when the protection circuits activate.

SPECIFICATIONS

Amplifier section

Continuous RMS power output
 2 channels driven simultaneously
 At 20 Hz–20 kHz
 20 + 20 watts (0.08% THD, 8 ohms)
 According to DIN 45500
 25 + 25 watts (8 ohms)
 At 1 kHz
 34 + 34 watts (5% THD, 8 ohms)
 Dynamic headroom 1.4 dB (78 IHF)
 Harmonic distortion Less than 0.08% at rated output
 Intermodulation (IM) distortion
 40 Hz : 7 kHz = 4 : 1 Less than 0.08% at rated output
 Frequency response PHONO : RIAA equalization curve ± 0.5 dB
 CD/AUX) 10 Hz–50 kHz $^{+0}_{-3}$ dB
 TAPE)
 Residual noise Less than 200 μ V (8 ohms, network A)
 Damping factor 30 (8 ohms, 1 kHz)
 Outputs

	Sensitivity	Impedance	Maximum input capability (1 kHz)	S/N (weighting network, input level)
PHONO	2.5 mV	50 k Ω	150 mV	74 dB (A, 2.5 mV)
CD/AUX TAPE	150 mV	50 k Ω	—	90 dB (A, 150 mV)

Outputs REC OUT
 Voltage 150 mV
 Impedance 10 k ohms
 SPEAKER A, B
 Accepts speakers of 8 to 16 ohms.
 HEADPHONES
 Accepts low and high impedance headphones.
 Tone controls BASS
 ± 8 dB at 100 Hz
 TREBLE
 ± 8 dB at 10 kHz
 Loudness (att. 30 dB) + 8 dB at 100 Hz

FM tuner section

Tuning range 87.5 MHz–108 MHz
 Antenna terminal 75 ohms, unbalanced
 300 ohms, balanced
 Intermediate frequency 10.7 MHz
 Sensitivity at 46 dB quieting (40 kHz deviation)
 4.5 μ V (mono)
 45 μ V (stereo)
 Usable sensitivity 1.7 μ V (S/N = 26 dB, 40 kHz deviation)
 11.2 dBf, 2 μ V (IHF)
 Signal-to-noise ratio (40 kHz deviation)
 70 dB (mono), 65 dB (stereo)
 Harmonic distortion (40 kHz deviation)
 0.2% (mono), 0.3% (stereo) at 1 kHz
 IM distortion (40 kHz deviation)
 0.2% (mono), 0.3% (stereo)
 Separation 45 dB at 1 kHz
 Frequency response 44 Hz–12.5 kHz $^{+0.5}_{-1}$ dB
 Selectivity 60 dB at 300 kHz
 Capture ratio 1.5 dB
 AM suppression ratio 48 dB

Image response ratio

45 dB

IF response ratio 90 dB

Spurious response ratio

70 dB

RF intermodulation 60 dB (IHF)

Auto-tuning threshold

Approx. 45 dBf

MW/LW tuner section

	MW	LW
Tuning range	522 kHz – 1,602 kHz	153 kHz – 344 kHz
Antenna	ferrite-bar antenna	provided
	external antenna terminal	provided
Intermediate frequency	450 kHz	450 kHz
Usable sensitivity	ferrite-bar antenna	300 μ V/m (at 1,000 kHz)
	external antenna	100 μ V (at 1,000 kHz)
Signal-to-noise ratio	54 dB	54 dB
Harmonic distortion	0.3%	0.3%
Selectivity	35 dB (9 kHz)	35 dB (9 kHz)

General

System

Tuner section: PLL quartz-locked digital synthesizer system

Preamplifier section: low-noise NF type equalizer amp.

Power amplifier section: quasi-complementary SEPP

Power requirements Type 1 (for Continental European countries):
 220 V ac (or 240 V ac adjustable by authorized Sony personnel), 50 Hz
 Type 2 (for United Kingdom): 240 V ac, 50 Hz

Memory back-up power: 3 V dc, two batteries, IEC designation R6 (size AA)

Battery life: approx. 1 year with Sony SUM-3(NS) New Super Batteries

Power consumption 75 watts

AC outlets 2 switched total 100 watts

Dimensions Approx. 430 × 105 × 300 mm (w/h/d)
 (17 × 4 $\frac{1}{4}$ × 11 $\frac{7}{8}$ inches)

Weight including projecting parts and controls
 Approx. 6.3 kg (13 lbs 14 oz) net
 Approx. 7.6 kg (16 lbs 12 oz) in shipping carton

Accessories supplied

FM ribbon antenna (1)

Station label (1 set)

Sony SUM-3 (NS) New Super Batteries (2)

While the information given is true at the time of printing, small production changes in the course of our company's policy of improvement through research and design might not necessarily be indicated in the specifications.

We would ask you to check with your appointed Sony dealer if clarification on any point is required.